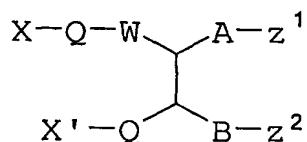


Claims

5

1. A compound of the general formula



(I)

10 in which one of X and X' represents a polymer, and the other represents a hydrogen atom;

each Q independently represents a linking group;

W represents an electron-withdrawing moiety or a moiety preparable by reduction of an electron-withdrawing moiety;

15 or, if X' represents a polymer, X-Q-W- together may represent an electron withdrawing group; and in addition, if X represents a polymer, X' and electron withdrawing group W together with the interjacent atoms may form a ring;

each of Z¹ and Z² independently represents a group 20 derived from a biological molecule, each of which is linked to A and B via a nucleophilic moiety; or Z¹ and Z² together represent a single group derived from a biological molecule which is linked to A and B via two nucleophilic moieties;

A is a C₁₋₅ alkylene or alkenylene chain; and

25 B is a bond or a C₁₋₄ alkylene or alkenylene chain.

2. A compound as claimed in claim 1, in which a polymer X or X' is a polyalkylene glycol, a polyvinylpyrrolidone, a polyacrylate, a polyoxazoline, a polyvinylalcohol, a

polyacrylamide or polymethacrylamide, a HPMA copolymer, a polyester, polyacetal, poly(ortho ester), polycarbonate, poly(imino carbonate), polyamide, a copolymers of divinylether-maleic anhydride or styrene-maleic anhydride, a 5 polysaccharide, or polyglutamic acid.

3. A compound as claimed in claim 2, in which the polymer is a polyethylene glycol.

10 4. A compound as claimed in any one of claims 1 to 4, in which each linking group Q independently represents a direct bond, an alkylene group, or an optionally-substituted aryl or heteroaryl group, any of which may be terminated or interrupted by one or more oxygen atoms, sulphur atoms, -NR 15 groups in which R represents an alkyl or aryl group, keto groups, -O-CO- groups and/or -CO-O- groups.

5. A compound as claimed in any one of claims 1 to 5, in which W represents a keto or aldehyde group CO, an ester 20 group -O-CO- or a sulphone group -SO₂-, or a group obtained by reduction of such a group, or X-Q-W- together represent a cyano group.

6. A compound as claimed in any one of claims 1 to 6, in 25 which Z¹ and Z² together represent a single biological molecule

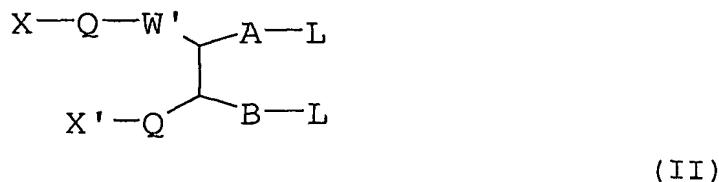
7. A compound as claimed in any one of claims 1 to 5, in which each of Z¹ and Z², or Z¹ and Z² together, represent a 30 protein.

8. A compound as claimed in claim 7, in which the or each protein is linked to A and B via thiol groups.

9. A compound as claimed in claim 8, in which said thiol groups have been generated by partial reduction of a disulphide bridge.

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10. A process for the preparation of a compound as claimed in any one of claims 1 to 9, which comprises reacting either (i) a compound of the general formula



10 in which one of X and X' represents a polymer and the other represents a hydrogen atom;

Q represents a linking group;

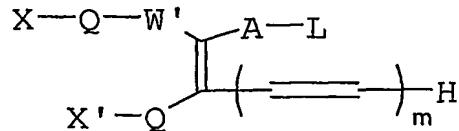
W' represents an electron-withdrawing group, for example a keto group, an ester group -O-CO- or a sulphone group -SO₂-; or, if X' represents a polymer, X-Q-W' together may represent an electron withdrawing group;

A represents a C₁₋₅ alkylene or alkenylene chain;

B represents a bond or a C₁₋₄ alkylene or alkenylene chain; and

20 each L independently represents a leaving group;

or (ii) a compound of the general formula



(III)

in which X, X', Q, W', A and L have the meanings given for the general formula II, and in addition if X represents a polymer, X' and electron-withdrawing group W' together with the interjacent atoms may form a ring, and m represents an 5 integer 1 to 4; with compounds of the general formula Z^1Nu or Z^2Nu or a compound of the formula $Z(Nu)_2$ in which Z represents a biological molecule, and each Nu independently represents a nucleophilic group.

10 11. A process as claimed in claim 10, in which the or each leaving group L represents $-SR$, $-SO_2R$, $-OSO_2R$, $-N^+R_3$, $-N^+HR_2$, $-N^+H_2R$, halogen, or $-O\emptyset$, in which R represents an alkyl or aryl group and \emptyset represents a substituted aryl group containing at least one electron withdrawing substituent.

15

12. A compound of the general formula II or III as defined in either claim 10 or claim 11.

13. A pharmaceutical composition comprising a
20 physiologically tolerable compound as claimed in any one of claims 1 to 9, together with a pharmaceutically acceptable carrier.

14. A compound as claimed in any one of claims 1 to 9 for
25 use as a medicament.